

## Introduction

- Effective classroom management [1] is considered a key criterion for turning formal learning spaces into effective learning environments. However, contemporary classroom orchestration [2] is arguably ad hoc and challenging, primarily due to its multi-faceted nature
- Working with Dillenbourg's view of orchestration [3], we propose/investigate streamlined technology-driven orchestration through the use of an orchestration workbench

## Orchestration Workbench

- Key orchestration workbench framework aspects
  - Process management
  - Sequencing management
  - Time management

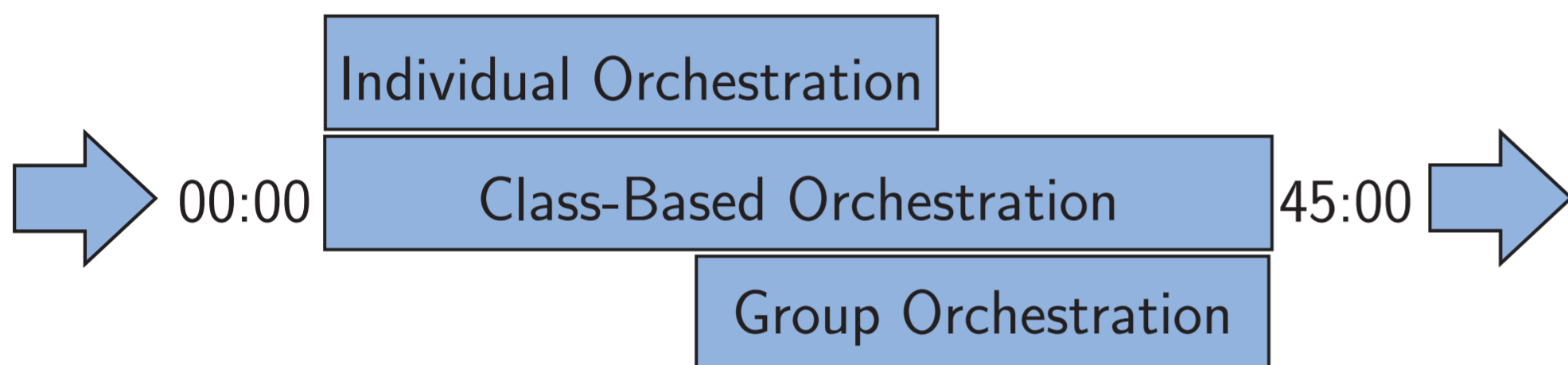


Figure 1. Key Orchestration Workbench Aspects

## Scientific Goals

- Investigate the impact of an orchestration workbench on teaching and learning
  - Devise a generic orchestration workbench framework for achieving streamlined technology-driven orchestration
  - Demonstrate the successful use of streamlined technology-driven orchestration

## Experimental Methods

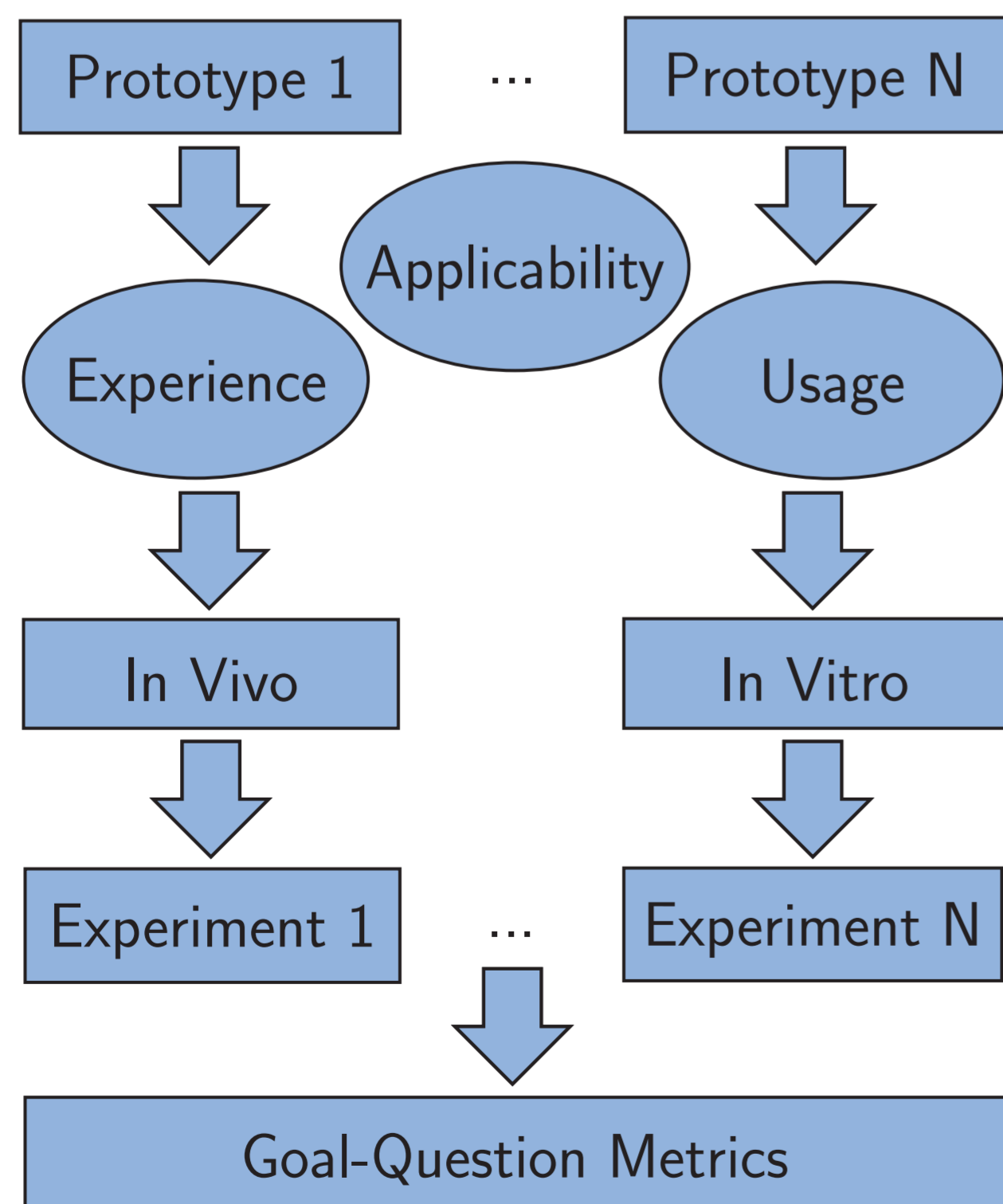


Figure 2. Experimental Methods

- Evidence gathered using a combination of case studies and controlled experiments, in order to assess generalisation and applicability of orchestration workbench

## Experimental Results

- Flipped classroom experiment for a second year computer architecture course to explore organised orchestration

Table 1. Orchestrated Flipped Classroom Activities

Activity	Orchestration	Orchestration Aspect	Tooling
Demonstration	Live demonstrations	Class	Information rendering
Discussion	Interactive discussions	Class& Individual	Information rendering
Quiz	Timed& graded quiz	Individual	Information rendering



Figure 3. Flipped Classroom Streamlined Technology-driven Orchestration

- Key findings

- Feasibility of approach ascertained
- Noticeable positive impact on students' learning experience

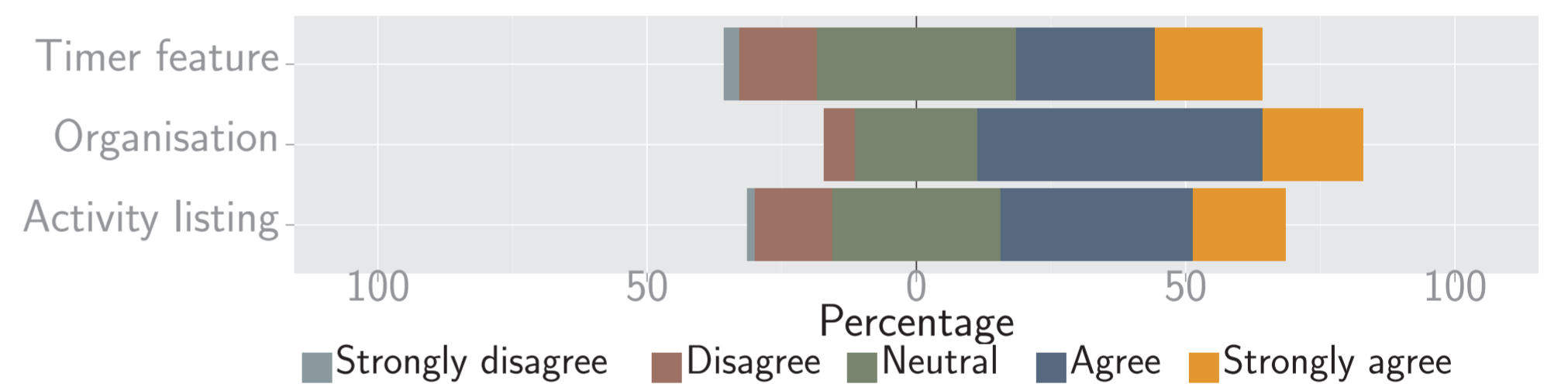


Figure 4. Learners' Experience Survey Results

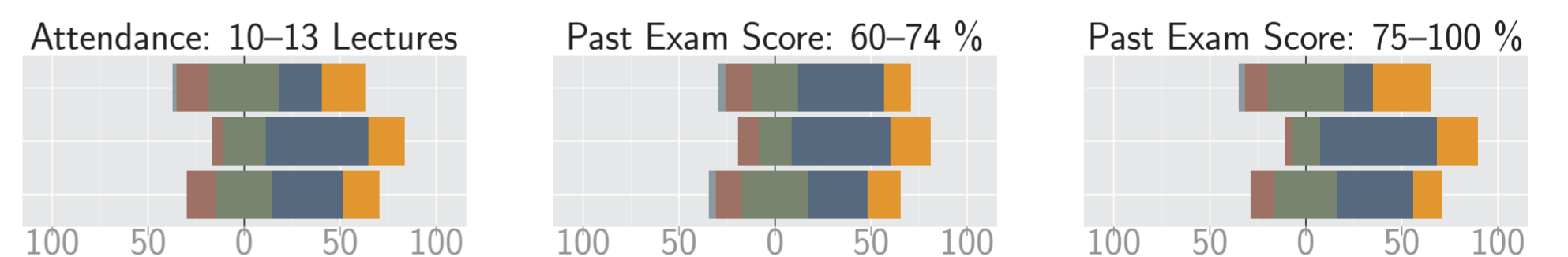


Figure 5. Learners' Experience Survey Results for Selected Demographics

## Future Direction

Establish a generic orchestration framework and demonstrate its applicability using real-world case studies

## Acknowledgements

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## Bibliography

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- Jeremy Roschelle et al. Classroom Orchestration: Synthesis. *Computers & Education*, 69:523–526, 2013.
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